SFA Modernization Partner

United States Department of Education

Student Financial Assistance

Technical Architecture Services Report
1Q01

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1 Introduction

1.1 Summary

The *Technical Architecture Services Report: First Quarter of 2001* summarizes the Integrated Technical Architecture (ITA) team's tasks related to implementing Task Order 46 during the first quarter of 2001. Task Order 46 provides support and enhancements for the SFA's ITA. The ITA architecture provides a standardized, reusable infrastructure for enabling business capabilities within the SFA application community. The long-term vision of the ITA is to provide an integrated, enterprise-wide technical architecture that will enable SFA to reduce the number of custom-built, siloed applications that are difficult to update and maintain.

The ITA team's tasks fall into the following two categories:

- Roll Out Support
- Product Specialist Support

Section two of the report provides a description of the ITA tasks performed within these categories during the first quarter of 2001.

2 Support Areas

During the first quarter of 2001, the ITA team provided technical support to SFA in the following areas:

- Roll Out Support
- Product Specialist Support

The following sections describe the specific tasks the ITA team performed in these support areas.

2.1 Roll Out Support

2.1.1 WebSphere 3.5.3

ITA Release 1.0 (R1.0) used WebSphere Application Server (WAS) v. 3.02.1 and IBM Http Server (IHS) v. 1.3.6 as its base version. The production releases of the Intranet and IFAP applications use the ITA R1.0-supported version of WebSphere.

ITA Release 2.0 (R2.0) will upgrade the base version of WAS to v. 3.5 and IHS to v. 1.3.12 in the application environments. In preparation for the upgrade, the ITA team built the application development and test environment using a Sun E3500 and the ITA R2.0-supported versions of WAS and IHS.

2.1.2 WebTrends Reports

Prior to the implementation of ITA R1.0, SFA used the WebTrends reporting tool to assess performance metrics on its Web Servers. Leveraging this capability, ITA R1.0 enabled WebTrends in the ITA architecture as applications went to production. The Intranet application (which went to production on December 10, 2000) uses WebTrends to report metrics including number of users, number of hits, and types of browsers.

In order to enable WebTrends, the ITA team provided technical support and helped resolve issues by performing the following tasks:

- Resolved SFA cookie usage policy.
- Defined standard IHS log directories and how WebTrends could access the logs.
- Enabled WebTrends support within the IHS servers.

Throughout the implementation, ITA provided educational and debug support. When the Department of Education Web Server updated its search database by spidering the Intranet web site, WebTrends showed a sudden increase of new users. After investigating the issue, the ITA team recommended and implemented a blocking strategy for certain spidering sites.

2.1.3 IFAP/Schools Portals

The ITA team assisted the IFAP and School Portals debug and resolve several problems discovered late in the production readiness cycle. In particular, a caching problem was identified in IFAP and required an application development fix. ITA also helped define and implement application restart algorithms for School Portals.

2.1.4 WebSphere Application Server Environments

The ITA team participated in the development cycle of different applications on WAS v. 3.5.3. The ITA team reviewed the proposed configuration and business needs with the individual application groups. Once the ITA team understood the configuration requirements, they created the development/test environments and provided support to the application group. Currently Campus Based Systems (CBS), Enterprise Information Portal (EIP), and FAFSA on the Web development groups have development environments. FAFSA on the Web also has a test environment. To evaluate the effort that it would take to migrate the IFAP application from WAS v. 3.02 to 3.5.3, ITA set up a development WebSphere application server for testing.

2.1.5 Performance Test Environment

The ITA team is assisting SFA create a new performance test environment for the FAFSA on the Web application. The ITA team has prepared a migration plan that will enable SFA to replace high capacity systems that are not fully utilized within the development or production environments and move them to the performance test environment. The ITA team has analyzed server utilization to identify servers within the ITA environments that are underutilized and can be replaced by smaller systems.

2.1.6 Design Reviews

The ITA team has participated in application design reviews with the application teams' developers. By participating in the design sessions, ITA helps ensure that the developers understand the intent of the WebSphere Framework and the use of the ITA architecture. The meetings also help the ITA team understand the business needs and the implementation strategy for the applications. The ITA team has conducted weekly design sessions with the FAFSA on the Web and CBS application teams. Additionally, the ITA team has participated in smaller group design discussions, as needed.

2.1.7 Security Audit

To ensure the security of the ITA environments, the ITA Team has verified that the proper users and groups are in place and have the corresponding permissions associated with them. In order to verify the security procedures, CSC requested an audit to ensure that they could delete out-of-date IDs.

2.1.8 Capacity Planning Methodology

The ITA team researched and developed a capacity planning methodology. The capacity planning methodology was used to determine FAFSA on the Web hardware capacity plans and the maximum capacities for the current ITA environment. Based on the current capacities, the ITA team prepared the performance test environment.

2.2 Product Specialist Support

2.2.1 Autonomy

ITA provided support for the Production Operations of Autonomy. Several problems have occurred with the synchronization of the production Dynamic Request Engine (DRE) databases. ITA provided fixes to the startup scripts as well as input to the replication process.

2.2.2 Best Practices

ITA team members gathered best practices for WebSphere run time, Web Server performance, and Java development. These best practices are currently being distributed to the application teams. The ITA team also answers application teams' questions to ensure that the applications running on ITA R2.0 will achieve optimal performance.

2.2.3 Java/JSP Support

The ITA team has provided some Java and JavaScript debugging and programming assistance to Production Operations to identify and resolve problems in the Intranet, IFAP and School Portals applications.

2.2.4 Shadow Direct

The FAFSA on the Web application requires the use of a non-ITA database driver called Shadow Direct. The Shadow Direct driver is used in the current production environment of the FAFSA on the Web application to allow connection to the mainframe based DB2 database. To minimize development effort to migrate FAFSA on the Web to the current ITA standard, a development decision was made to include Shadow Direct in the ITA release of FAFSA on the

Web. The ITA team has installed, configured, tested, and documented the Shadow Direct product as well as debugged several problems. Currently the Shadow Direct product is installed in the FAFSA on the Web development environment and the ITA team is resolving issues that arise.

2.2.5 Quality Environments

The ITA team evaluated the current development, testing, and staging environments and recommended areas for improvements in the Quality Environments document.